

Claims

1. An electret condenser microphone comprising:

a vibrating diaphragm in which one face is
electrically conductive;

5 a fixed electrode which is placed to be opposed to
said vibrating diaphragm via an air layer;

a dielectric layer which becomes an electret for
storing charges in one of said vibrating diaphragm and said
fixed electrode;

10 circuit means for converting an electrostatic capacity
between said vibrating diaphragm and said fixed electrode
to an electric signal;

external connecting means for leading out the electric
signal; and

15 a spacer which forms and holds a predetermined
positional relationship between said vibrating diaphragm
and said fixed electrode, and which forms a space between
said fixed electrode and said circuit means, said
microphone being incorporated in a metallic case while
20 exposing only said external connecting means, wherein

an outer face of said case is coated by a nonmetallic
material in which a deforming temperature is higher than a
charge dissipating temperature of said dielectric layer
that becomes said electret.

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2. The electret condenser microphone according to claim

1, wherein

 said nonmetallic material which coats said case is one
 of polyimide, a liquid crystal polymer, polyetherimide
 (PEI), polyetheretherketone (PEEK), polyetherimidene (PEN),
5 and polyphenylene sulfide (PPS), or a composite material
 containing one of the materials.

3. The electret condenser microphone according to claim 1,
 wherein said dielectric layer contains
10 polytetrafluoroethylene (PTFE).

4. The electret condenser microphone according to claim 3,
 wherein a film thickness of the polytetrafluoroethylene
 (PTFE) is equal to or larger than three times of a particle
15 diameter of the PTFE.

5. The electret condenser microphone according to claim 3,
 wherein said microphone has a structure in which said
 dielectric layer is a silicon oxide film (SiO_2), and said
20 silicon oxide film (SiO_2) is thoroughly coated by an
 insulator other than a silicon oxide film to prevent said
 silicon oxide film (SiO_2) from being exposed to an
 atmosphere.

25 6. The electret condenser microphone according to claim 5,
 wherein

said silicon oxide film (SiO_2) is formed by a plasma CVD (Chemical Vapor Deposition) method or a low-pressure CVD method.

5 7. The electret condenser microphone according to claim 1,
wherein

a material of said spacer is one of polyimide, a
liquid crystal polymer, polyetherimide (PEI),
polyehteretherketone (PEEK), polyehternitrile (PEN), and
10 polyphenylene sulfide (PPS), or a composite material
containing one of the materials.